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September 17, 2013

The Honorable Regina A. McCarthy
Administrator
U.S. Environmental Protection Agency
William Jefferson Clinton Federal Building
1200 Pennsylvania Ave., NW
Washington, DC 20460-0001

Dear Administrator McCarthy:

On behalf of the Board of Directors and member companies of the Edison Electric Institute (EEI), as well as our partners at the Nuclear Energy Institute (NEI), Clean Energy Group (CEG), and Utility Water Act Group (UWAG), we want to extend our sincere thanks to you and your team for the productive meeting on September 5 regarding industry issues with the Clean Water Act (CWA) § 316(b) cooling water intake structures rulemaking for existing facilities. As you know, this rulemaking, which will impact almost half of the existing U.S. generation capacity, is expected to be completed by November 4. We believe the rule can be designed to achieve important environmental benefits with cost-effective technology solutions, while avoiding inappropriate energy and reliability impacts and without imposing unnecessary costs on consumers.

Our September 5 meeting demonstrated that a constructive relationship among you, your staff, and the electric power sector can be mutually beneficial in charting a path toward environmentally protective and cost-effective regulation. Maintaining an open dialogue leads to more reasonable results, as already evidenced by the flexibility we understand EPA has incorporated into the draft final rule based on the comments addressing the Impingement Mortality Notice of Data Availability published in 2012.

During our meeting, you and your team asked for feedback on several issues of profound importance to the electric power industry. We are writing to address your questions and to offer our recommendations on how best to craft an acceptable final rule.

Use of Cost-Benefit Analysis as a Basis for Best Technology Available (BTA) Selection for Entrainment

EPA's proposed BTA standard for entrainment establishes a process for site-specific determination of entrainment requirements at individual facilities. This reflects EPA's determination that there is no single technology that qualifies as entrainment BTA for all facilities nationwide. EPA's proposal appropriately requires permitting authorities to consider nine factors, including costs and benefits, when making a BTA determination.

We understand that EPA's most recent thinking alters this requirement by making consideration of costs and benefits in BTA determinations optional. If cost/benefit balancing is optional, then

a permitting authority could require a cooling tower retrofit simply because it is technically feasible regardless of the huge costs and questionable benefits created by reducing impacts to life stages that typically have very high natural mortality rates. For many plants, the only realistic option would be either to install towers at a very high cost to the customers or shutter the facility.

We support site-specific entrainment BTA determinations. However, EPA should require permitting authorities to consider all nine factors, including costs and benefits, set out in the proposed rule in making entrainment decisions.

Stated Preference Survey (Willingness-to-Pay)

We understand that EPA will not rely on its national and regional stated preference survey results to justify the rulemaking, though EPA is continuing to evaluate the usefulness of the methodology to measure non-use benefits.

Use of Survey Results

For the same reasons that EPA is not using the survey results to justify the rulemaking, EPA should make clear that states cannot rely on the results in evaluating benefits in site-specific permitting decisions. There has not been any determination that the results are scientifically sound.

EPA can address this concern by stating explicitly that: (1) EPA's stated preference survey and its results have no relevance to any future application of the § 316(b) rule, including in permitting decisions and future guidance or other decisions by EPA or state permit writers; and (2) the results of EPA's national and regionally conducted survey should not be used to quantify the non-use benefits for a site-specific decision.

Use of Survey Methodology

We are also concerned about the inappropriate use of the willingness-to-pay (WTP) survey methodology in the § 316(b) context, especially since both the proposed rule and, as we understand it, the draft final rule implicitly require permittees to use this controversial methodology. For instance, as discussed in 40 C.F.R. § 125.98(e)(3), the proposed rule requires states to consider non-use benefits by requiring permitting directors to determine quantified and qualitative social benefits and social costs of available entrainment technologies, **including ecological benefits** and benefits to any threatened or endangered species. The proposed rule also requires at 40 C.F.R. § 122.21(r)(11) that the permittee conduct a *Benefits Valuation Study* that is to identify the "basis for any monetized values … assigned to changes in commercial and recreational species, forage fish, and shellfish, and to any other ecosystem or non-use benefits." It is our understanding that the draft final rule may go even further by precluding permitting directors from rejecting an entrainment technology based on the comparison of the costs and benefits if the information on benefits is inadequate, which EPA has suggested will be true if non-use benefits are not quantified. Further, it is our understanding that the draft final rule also incorporates the principle of WTP into the definition of social benefits.

Given EPA's decision to seek further review of its own WTP survey, EPA should not include any language in the final rule that might be interpreted to encourage or require states to pursue the use of such surveys, which are likely to inflate benefits and skew decision-making toward

closed-cycle cooling, in conflict with the Agency's own recognition that closed-cycle cooling is not BTA. Instead, the treatment of non-use benefits should be left to the states' discretion.

EPA can address our concerns by stating explicitly that quantification of non-use benefits is not required in site-specific decisions by state permitting authorities.

Definition of New and Existing Units at Existing Facilities

In what would be a significant change in definition, it is our understanding that EPA intends to treat units that replace the turbine and the condenser as "new units," and to require these units to install closed-cycle cooling except where the permittee has installed a high-efficiency unit. This would be true even where the modification or replacement results in no change in the capacity of an existing intake structure. However, EPA's authority under § 316(b) extends only to the *cooling water intake structure.* In the absence of a significant modification to the existing cooling water intake structure (beyond those undertaken expressly to comply with the impingement mortality and entrainment requirements of this final regulation), there is no statutory basis for regulating a modified or replacement unit any differently than an original or unmodified unit. Such a change in the definition of existing units is analogous to EPA creating a first of its kind new source review program for existing cooling water intake structures under the Clean Water Act without the legislative authority to do so. We believe that "repowered, rebuilt and replaced" units should be subject to the same impingement mortality and entrainment requirements as the rule applies to other units at existing facilities. Imposing a "cooling tower only" requirement on such units would be a disincentive to upgrade or repower facilities, which otherwise would lead to environmental benefits.

On a separate but related issue, uprates of existing nuclear facilities should not artificially be classified as "new units," thereby imposing a cooling tower requirement. Construction is presently underway at several of the nation's nuclear plants to install equipment and to increase the emissions-free electricity from these plants. These uprates have been approved by the Nuclear Regulatory Commission and involve billions of dollars of expenses that did not anticipate that the units would have to install closed-cycle cooling. The final rule language would jeopardize these current uprate projects and prevent future uprates.

The electric power sector strongly believes that EPA should define a new unit in the final rule the same way it did in its proposal—by expressly excluding "repowered, rebuilt or replaced" units from being defined as "new" units. The rule should also specify that nuclear plant uprates do not constitute a "new unit," and, therefore, do not trigger a requirement to install cooling towers. Facilities will need to replace turbines and/or condensers or component parts during the expected life of the facility. Requiring cooling towers upon replacement of these parts would prematurely close facilities and create disincentives to investments that otherwise would lead to environmental benefits.

Definition of Closed-Cycle Cooling and Waters of the United States (WOUS)

EPA has asked whether industry would find workable a rule that precludes impoundments classified as WOUS from qualifying as part of a closed-cycle cooling system as long as the Agency assures that it will not use this rule or revised WOUS guidance or rules to change the status quo as to the current exemption for waste treatment systems.

We do not think that approach would meet the concerns we discussed because EPA has not consistently recognized that waste treatment systems lawfully created in or by impounding waters of the United States are not themselves WOUS. Although EPA has acknowledged in regulations and guidance governing EPA's jurisdiction that waste treatment systems created in WOUS before passage of the CWA, and waste treatment systems lawfully created after passage of the CWA implementing regulations should not be disqualified from the waste treatment exemption, in practice the Regions have sometimes failed to abide by this policy. As a result, relying solely on the waste treatment system exemption could preclude the continued use of some impoundments specifically designed primarily for closed-cycle cooling. Such a result would be unfair, costly, and environmentally unnecessary.

In addition to maintaining the current regulatory exemption for waste treatment systems, EPA should specify that cooling ponds or impoundments lawfully created principally to serve as part of a closed-cycle cooling system can continue to serve that purpose and will satisfy § 316(b) for both impingement and entrainment.

Endangered Species Act and Section 7 Consultation

EPA and the U.S. Fish and Wildlife Service and National Marine Fisheries Service (Services) have now commenced formal consultation under Section 7 of the Endangered Species Act (ESA). In our September 5 meeting, EPA acknowledged that the consultation process should not blur the lines between the statutory authorities of the ESA and the CWA, and, further, that no new regulatory authority is envisioned for the Services.

It is our understanding, however, that EPA has added provisions in the draft final rule requiring permittees to submit permit application materials directly to the Services, and to coordinate directly with the Services for purposes of determining whether any more stringent impingement and entrainment control requirements are warranted at individual facilities. The provisions reportedly require States to impose any more stringent requirements deemed necessary by the Services.

However, EPA should remove from the rule any provisions inserting the Services directly into the § 316(b) compliance determination process. Neither the CWA nor the ESA provides the Services with any direct role in the National Pollutant Discharge Elimination System (NPDES) permitting process. Although the Services, like other federal and state agencies, are entitled to comment on draft permits, neither statute gives them any role in setting or implementing § 316(b) or determining NPDES permit provisions. The Services have ample authority to protect their interests in permit-based § 316(b) implementation by following customary procedures under the CWA and by using their enforcement authorities. Nothing further is authorized or required.

Low Capacity Utilization Units

EPA has recognized in other regulations that some low capacity utilization units (often peakers) are needed for grid reliability and local load balancing needs, and that such units are unable to economically bear the same compliance costs as baseload and other higher capacity units. Given how infrequently such facilities operate, there is little risk that any short-term impact from such units would have a material and adverse long-term impact on the environment. Therefore, EPA should specify a capacity factor or flow rate below which the final rule's requirements will not

apply, thus recognizing the limitations of these facilities to cost-effectively install impingement and entrainment controls.

EPA should adopt a provision similar to that found in the Mercury and Air Toxics Standards (MATS) rule, which provides a limited use subcategory for certain facilities with an annual capacity factor limit of no more than 8 percent measured over a 24-month block. Alternatively, a flow rate limit of approximately 15 percent of the maximum possible withdrawal volume on an annual basis could be used. It is vital that such a provision apply to units operated for grid reliability reasons, such as units dispatched to meet seasonal peak demand and situations where fuel flexibility is necessary to offset supply restrictions in a specific geographic region. Limiting such a provision to only units used for emergency purposes would not adequately address the fundamental need to allow peaking units to continue to operate.

Again, we thank you for your continued focus on this most important utility issue and for the prior work to address a number of our concerns. We look forward to working with you and your team to satisfactorily address the remaining issues and ensure that EPA promulgates a reasonable and environmentally protective final regulation.

Sincerely,

Michael W. Yackira
President & CEO, NV Energy
EEI Chair

Lewis Hay, III
Executive Chairman, NextEra Energy, Inc.
Immediate Past EEI Chair

Thomas F. Farrell
Chairman, President & CEO
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cc: The Hon. Robert Perciasepe, EPA

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Edison Electric Institute

December 20, 2013

The Honorable Regina A. McCarthy
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1200 Pennsylvania Ave., NW
Washington, DC 20460-0001

Dear Administrator McCarthy:

On behalf of the Board of Directors and member companies of the Edison Electric Institute (EEI), as well as our partners at the Nuclear Energy Institute (NEI), Clean Energy Group's 316(b) Initiative (CEG), and Utility Water Act Group (UWAG), we want to extend our sincere thanks to Ken Kopocis and his team for meeting with our staff on December 18, 2013 to discuss remaining electric power sector concerns with the Clean Water Act (CWA) § 316(b) cooling water intake structures rulemaking for existing facilities which is expected to be completed by January 14, 2014. Last week's meeting was attended by Howard Shelanski, Dan Utech, and Gary Guzy and their respective teams, allowing for frank and open dialogue on the remaining issues.

Earlier in the year, you asked for feedback on certain issues of importance to the electric utility industry. Our September 17th response (attached) outlined our concerns about the proposed rule. Since that time, we understand that language in the rule has continued to be refined and that several of the issues we raised at that time have been the subject of revision. It is our understanding that several of these issues remain to be resolved and a new issue regarding permit application requirements has arisen. We are writing to explain those concerns and offer our recommendations on how best to resolve them in the final rule.

Endangered Species Act (ESA) Consultation and ESA-Related Regulatory Requirements

In a prior communication with you (see Utility Water Act Group letter dated October 25, 2013), we have stated that the proposed § 316(b) rule will have only beneficial effects on listed species and the Services should conclude consultation with either a "not likely to adversely affect" concurrence, or a biological opinion finding that no jeopardy or adverse modification will occur as a result of the rule. Nevertheless, it is our understanding that in response to the ESA consultation, the rule could require permittees to provide vastly expanded information to permitting authorities on the potential for direct and indirect impacts to threatened and endangered species. We have further concerns that any new ESA framework would raise considerable practical and legal problems and impose potential liabilities on the permittees. Trying to address species that may be in the area, but have no risk of being impinged or indirectly affected, and are potential prey of a listed species is much broader than the current ESA applications in the NPDES permitting process. To address these concerns, we request that:

- The Services reach a "not likely to adversely affect" concurrence, and

- Any focus in the rule, both in terms of monitoring and study requirements, must be on organisms inhabiting or likely to inhabit the zone of influence of the intake and thus likely to be *directly* affected by the intake.

ESA issues have long been evaluated and addressed at each our facilities as required by the Endangered Species Act. It is essential that EPA reconsider and not include this new scope of monitoring and study requirements in the final rule.

Definition of Closed-Cycle Cooling and Waters of the United States (WOUS)

We remain very concerned that EPA has not resolved this issue according to established legal and regulatory precedent. Whether an existing facility is open-cycle or closed-cycle is a function of design choices made at the time of construction, not the jurisdictional classification assigned to any man-made ponds or impoundments included in its design. In addition to maintaining the current regulatory exemption for waste treatment systems, we recommend that EPA specify that cooling ponds or impoundments lawfully created principally to serve as part of a closed-cycle cooling system can continue to serve that purpose and will satisfy § 316(b) for both impingement and entrainment. To do otherwise would result in stranding these assets because these impoundments would no longer be usable for the purpose for which they were designed. Requiring that their status as a compliance technology hinge on their jurisdictional status as WOUS is wholly inconsistent with the statements EPA explicitly made in justifying its 1979 NPDES rule defining WOUS, which **explicitly** acknowledged that an impoundment could function as a compliance technology even if classified as a WOUS. 44 Fed. Reg. 32,585, col. 1.

Use of Cost-Benefit Analysis and Willingness-to-Pay (WTP) Survey Issues

EPA's proposal appropriately requires permitting authorities to consider a variety of factors, including costs and benefits, when making a best technology available (BTA) determination. We understand that EPA's most recent thinking restores costs and benefits in BTA determinations to the list of mandatory actions to be considered by the Director. This is a positive step. However, there remain certain concerns regarding the continued reference to and endorsement of the use of WTP surveys on an individual permit basis despite the significant, demonstrable problems with the use of such surveys.

To resolve these remaining concerns we ask that EPA take the following actions:

- Moderate the language which encourages the quantification of non-use benefits of reducing entrainment. It must be clear that states are not required to conduct a WTP survey to consider a permit application. This can be accomplished by (1) adding language acknowledging that in many cases, non-use benefits may not occur, (2) acknowledging the substantial issues involved in developing WTP surveys capable of producing reliable information, and thus the inherent uncertainty in monetizing non-use benefits through the WTP methodology, and (3) in the discussion of social benefit evaluation, endorsing the use of qualitative descriptions and adding language similar to that included in the preamble to the Phase II rule, which specifically provided that monetization of non-use benefits was not warranted unless the entrainment characterization study indicated substantial harm to listed threatened and endangered species, to the sustainability of populations of important species of fish, shellfish, and wildlife, or to maintenance of community structure and function in a facility's waterbody or watershed. 69 Fed. Reg. 41,648, col. 1.

- Ensure that the preamble and the rule clearly state that all non-water quality impacts are to be equally considered and weighed in determining whether further entrainment controls are justified, and

- Modify the "backstop" provisions that require the Director to require closed-cycle cooling if any portion of the permit application is viewed to be "inadequate." Currently, these provisions could be interpreted as requiring closed-cycle cooling if a facility does not conduct and submit a WTP survey as part of a cost-benefit study.

Definition of New and Existing Units at Existing Facilities

As stated in our September 17, 2013 letter, the electric power sector strongly believes that EPA should distinguish between "new" and "existing" units at existing facilities consistent with the 2011 proposed rule. We understand that the most recent iteration of the draft rule proposes to pinpoint the moment a modification renders an existing unit a new unit when three things occur: (1) the unit is repowered, replaced or rebuilt; (2) both the turbine and condenser are replaced; and (3) the location of the cooling water intake structure or design intake flow is changed. When these conditions are met, a mandatory closed-cycle cooling requirement would be established. Closed-cycle cooling is not BTA for modified units for the same reasons –land constraints, reliability impacts, non-water quality environmental impacts, etc.—closed-cycle cooling is not BTA for new units. Further, this process establishes a "New Source Review" type program that will discourage future efficiency improvements such as nuclear uprates. There is no evidence that the modifications will result in adverse environmental impact. Of course, states have the opportunity upon every permit renewal to determine if additional protection is warranted as a result of a plant modification. In making this determination, states must consider the same factors that they apply to site-specific decisions for existing facilities. We recommend that the provision be modified to mirror the language of the 2011 proposal which stated that new units at existing facilities should expressly exclude "repowered, rebuilt or replaced" units.

***De Minimis* Concerns**

We appreciate that the Agency has taken a number of positive steps to recognize the importance of including language exempting facilities that have a *de minimis* environmental impact related to impingement. However, we understand that the language includes a broad, generalized application of the ESA in a fashion that would render the language meaningless for facilities because it prohibits the ability of facilities to qualify for the *de minimis* provision if a listed species may be present in the area rather than if the facility is impinging or entraining listed species. As a result, the ESA provisions will tie the hands of permit writers and result in unjustifiable new costs to facilities while producing no environmental benefits. The *de minimis* provision should remain focused on actual impingement, as opposed to indirect or potential impingement, while fully recognizing design and engineering protections. Accordingly, we ask that the *de minimis* provisions be modified to allow the Director to determine that no additional impingement controls may be required at facilities with a low documented rate of impingement provided the facility complies with applicable requirements of the Endangered Species Act.

Low Capacity Utilization Units

We understand the revised rule allows permittees to request less stringent impingement requirements for units with a low annual average capacity utilization rate. This is another positive development. But this provision must apply to entrainment as well as impingement. Units that have low capacity utilization rates are required for a variety of reasons, including but not limited to grid reliability, voltage maintenance, and load balancing. These facilities are infrequently called upon to produce power for the

grid. For those reasons, additional operational costs (such as the installation of impingement and entrainment reduction technologies) could make these units uneconomic and would force closure, thus defeating the reliability purpose they serve. Entrainment control technologies are often the more expensive and capital intensive of CWIS technologies. We would request that the provision be modified to allow permittees to request less stringent impingement and entrainment requirements for low capacity utilization units.

Permit Application Requirements and Deadlines

Permit application deadlines need to be reasonable in length and should not require the selection and installation of impingement control technologies until entrainment requirements have been established. This is a necessary feature of the final rule for engineering and cost reasons. To conduct impingement and entrainment assessments, the proper sequencing and adequate time are both needed. Based on our understanding of the current version of rule, neither is currently being provided.

To ensure that the permit application process is logical and efficient, we recommend that EPA should modify the final rule language to:

- Provide a minimum of five years for all facilities to complete the permit application requirements;
- Add a provision requiring facilities to identify proposed impingement mortality control options compatible with entrainment control options for facilities that do not have in place the impingement control technology on which they plan to rely;
- Authorize permit writers to approve impingement controls based on a predictive demonstration of their performance, with any required two-year optimization study occurring after the technology has been installed; and
- Authorize permit writers to adjust permit application deadlines for cause, regardless of the expiration date of the facility's current NPDES permit.

We thank you for your continued focus on this important rule that will affect almost half of the existing U.S. generation capacity. As we reach the final stages of this process, we are committed to working with the Agency to ensure an equitable and economical final rule that achieves important environmental benefits and ecological benefits throughout the U.S.

Sincerely,

Michael W. Yackira
President & CEO
NV Energy
EEI Chair

Gerard M. Anderson
Chairman, President & CEO
DTE Energy Company
EEI Policy Committee on Environment Co-Chair

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cc: The Hon. Robert Perciasepe, EPA
The Hon. Howard A. Shelanski, OMB
Gary Guzy, CEQ
Ken Kopocis, EPA
Dan Utech, DPC

January 24, 2014

The Honorable Regina A. McCarthy
Administrator
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Washington, DC 20460-0001

Dear Administrator McCarthy:

As follow up to our last meeting with you on the Clean Water Act Section 316(b) rulemaking, this letter highlights the rule's potential implications for nuclear units. Since the rule was proposed in April 2011, three issues have arisen that could trigger the premature retirement of a significant portion of the nuclear fleet. The loss of these units would have significant economic, reliability, and climate change implications. These issues include:

1. Requirements for repowered, replaced, or rebuilt units that could require units to install cooling towers if they undertake nuclear uprates or routine maintenance, including the replacement of turbines and condensers;
2. Language that could be interpreted to require the use of willingness-to-pay surveys to monetize non-use benefits that could result in significantly overstated benefits that justify a decision to install towers; and
3. Overly broad Endangered Species Act (ESA) provisions that could require facilities to cease operation or install cooling towers if a threatened or endangered (T&E) species is located in a water body from which a facility draws water even without evidence of impact to that species.

Our letter to you dated December 20, 2013 outlines these concerns in detail. All three issues remain key areas of concern for the industry and must be resolved in order to preserve the U.S. nuclear fleet. However, the balance of this letter focuses on the potential implication of the ESA provisions, as we understand them, for nuclear units—the largest source of zero carbon electricity generation in the fleet today. We urge EPA to study the unintended impact of these provisions on the nuclear fleet and the clean energy benefits the fleet provides.

First, we believe the Services should conclude the rule is "not likely to adversely affect" T&E species. We agree with EPA's original finding that the rule does not authorize any actions that could potentially harm T&E species because the rule provides additional protections for species from impingement and entrainment at cooling water intake structures. Moreover, this rule applies to existing sources, and T&E issues have long been evaluated and addressed at each of our facilities as required by the ESA. Facilities that have already undertaken an ESA Section 7 consultation or obtained a Section 10 permit should not be required to revisit these authorizations, and the final rule should make that clear in the regulatory text.

Second, any ESA monitoring and study requirements must be focused on T&E species directly affected by the intake through entrainment or impingement. We understand that the proposed ESA provisions will require permittees to identify listed species that *may* be in the waterbodies from which a facility draws water and *might be* indirectly affected by intake structures, including by potential impacts to their prey. This overly broad approach could be interpreted to require facilities to prove that the facility is not adversely affecting any T&E species present or that may be present. Attempting to prove this negative would be extremely burdensome and potentially impossible. As a result, this approach could lead to the imposition of requirements not specifically included in the ESA, including potentially requiring a facility to cease operations immediately or install cooling towers. Moreover, the approach used to incorporate proposed ESA provisions into the state 316(b) permitting process represents a dramatic departure from the current NRC-initiated Section 7 consultations procedure used for nuclear facilities that involves multiple federal agencies. Having the ESA consultation take place prior to submittal of a state permit application would shift the decision-making to a single federal agency. Rather, any ESA study or consultation should occur as an integral part of the current permitting process and not separately. In summary, the rule, as we understand it, would impose new ESA requirements that are beyond the scope of this rulemaking and that set an untenable precedent for future EPA rulemakings. These new ESA provisions are much more expansive than the current applications of ESA in the existing NPDES permitting process and are not supported by court decisions interpreting the requirements of the ESA.

Ultimately, we are concerned that these new ESA provisions could require owners and operators of cooling water intakes to install cooling towers even if there is no evidence that the facility is causing an adverse impact. Cooling towers are particularly problematic for existing nuclear units because of high retrofit costs associated with safety issues at nuclear plants and space constraints. This is true for nuclear units in competitive and regulated markets. In recent years, the economic conditions in competitive markets have caused the profitability of nuclear units to deteriorate. For example, the precipitous and sustained decline in natural gas prices since 2008 has significantly undermined the economics of nuclear generation by lowering the market price for energy. In Eastern PJM, the profitability of nuclear units (after accounting for normal operating and maintenance costs) has fallen to levels comparable to those realized by natural gas fired combined cycle generators. These economics tend to favor construction of new natural gas facilities compared to making large capital investments in existing nuclear plants. In fact, the North American Electric Reliability Corporation (NERC) concluded in a 2011 report that most nuclear units facing an obligation to install cooling towers would retire, and that 25 to 39 GW of electric generating capacity could be economically vulnerable to retirement as a result of a 316(b) rule that imposes closed cycle cooling.[1]

Similarly, cooling tower retrofits pose a problem for nuclear units in regulated states where retrofits are limited to what the public utility commission will approve. There is no certainty that state regulators will determine that investing billions of dollars to retrofit an existing nuclear unit with a cooling tower is the "lowest reasonable cost option" to meet the requirements. Rather,

[1] North American Electric Reliability Corporation, *Potential Impacts of Future Environmental Regulations* (November 2011).

state regulators will likely elect to allow a nuclear unit to shutter and instead approve an investment in a new natural gas combined cycle unit, resulting in higher greenhouse gas emissions.

The retirement of even a small number of nuclear units would have significant reliability and climate change implications. For example, Exelon has decided upon early retirement of its Oyster Creek Generating Station in New Jersey rather than installing uneconomic cooling towers. Assuming that generation from Oyster Creek would be replaced by existing resources in New Jersey, Oyster Creek avoided nearly two million metric tons of CO_2 emissions in 2012 alone.

In Virginia, Dominion's preliminary estimate for retrofitting the Surry Nuclear Power Station with cooling towers is approximately $3 billion. As the NRC licenses for Surry's two nuclear units expire in 2032 and 2033, it is unlikely that such a significant investment in a facility with a limited remaining useful life will be viewed by Virginia's State Corporation Commission (SCC) as serving the best interests of Dominion's customers. With the long lead time necessary to plan and construct cooling towers coupled with the uncertainty of possible 316(b) ESA requirements and Dominion's obligation to reliably serve its customers' electric power needs, it is highly likely the SCC could reasonably find a new natural gas combined cycle facility to be a more viable option.

Similarly, in California, the Diablo Canyon Power Plant serves about 10 percent of the state's electricity needs with no greenhouse gas emissions. The state is currently implementing its once-through cooling regulations and estimates show that requiring closed-cycle cooling at Diablo Canyon would cost about $9 billion to $12 billion, providing a negligible environmental benefit.[2] State regulators and independent scientists have reviewed Diablo Canyon's impacts on numerous occasions, and all have reached the same conclusion: the facility's low impingement does not warrant any further assessment or action.[3]

Since October 2012, companies have announced the retirement of five reactors representing nearly 4,200 megawatts. Nuclear currently provides one fifth of the nation's electricity and 62 percent of U.S. clean generation.[4] Emissions would increase if generation from fossil fuel-fired power plants replaces a large share of the retiring nuclear units' generation. As shown in the attached graphic, if the current pace of nuclear retirements continues, 25 percent of the nuclear fleet would likely retire by 2020. This outcome would cause the U.S. to lose over half of the progress we have made to date toward meeting President Obama's 2020 emission reduction goal of 17 percent of 2005 emissions.

We appreciate the time you and your staff have taken to hear our concerns on this rule, and please do not hesitate to contact us if you have any questions regarding our ESA concerns as

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[2] Bechtel Power Corporation, *Final Technologies Assessment for Alternative Cooling Technologies or Modifications to the Existing Once-Through Cooling System for Diablo Canyon Power Plant (Final Draft)* (September 2013) (PG&E Comments submitted October 2013).

[3] See e.g., Tenera, *Diablo Canyon Power Plant 316(b) Demonstration Report* (March 2000), pp. 1-2; Central Coast Regional Water Quality Control Board, Staff Testimony (July 10, 2003), pp. 6-7.

[4] Energy Information Agency (EIA), Net Generation Data 2003 to June 2013 (Available at: http://www.eia.gov).

they relate to nuclear units. We look forward to continuing to work with you to finalize the rule in the coming weeks.

Sincerely,

Christopher M. Crane
President & CEO
Exelon Corp.

Anthony F. Earley, Jr.
Chairman, President & CEO
PG&E Corp.

Thomas F. Farrell
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Ralph Izzo
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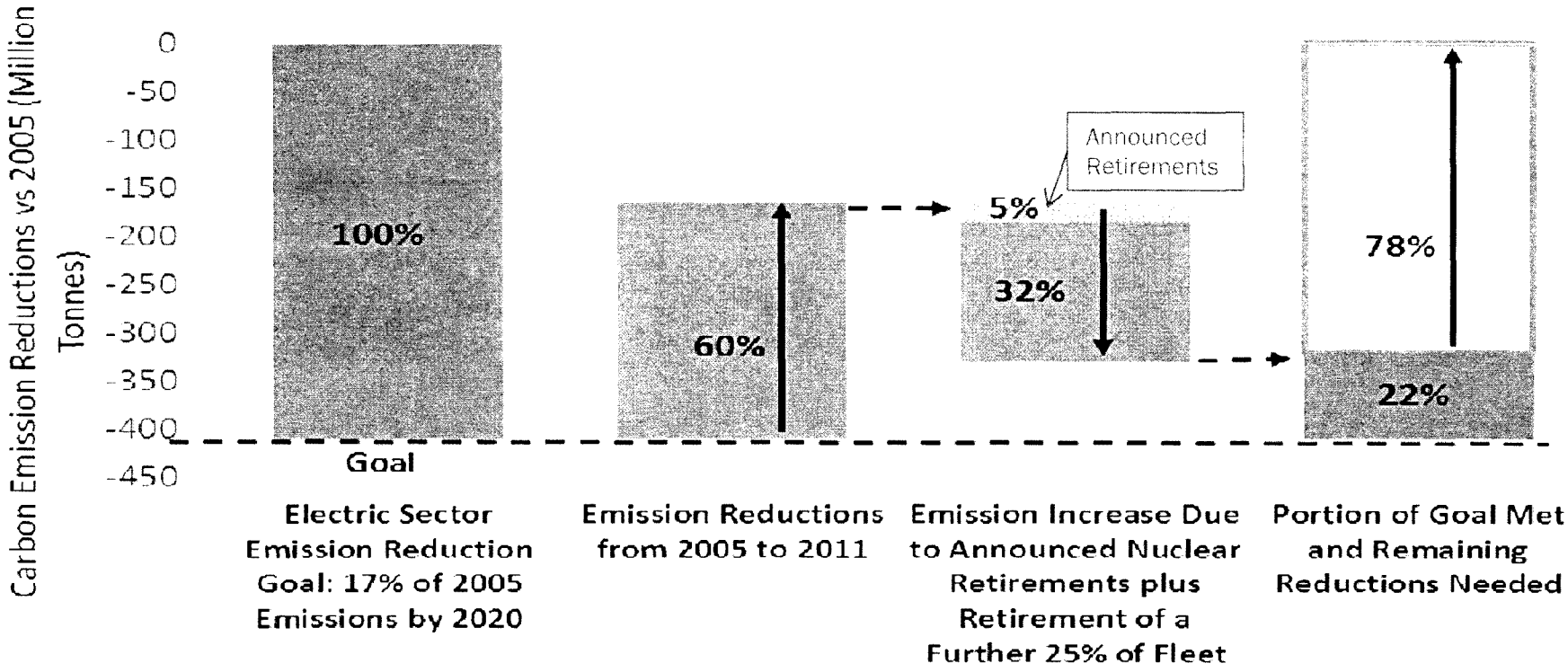
James L. Robo
Chairman, President & CEO
NextEra Energy, Inc.

Impact on carbon goals without nuclear

Retirement of 25% of nuclear fleet would give back over half the progress to date towards meeting 2020 emission reduction goal



Source: EIA; Exelon Estimates

Nuclear retirement increase assumes retirement of SONGS, Crystal River, Kewaunee, Vermont Yankee, and Oyster Creek plus 24.6 GW of additional "generic" capacity (29.4 GW total, including the announced retirements). Nuclear output is assumed to displace carbon at a rate of 0.67 tonnes per MWh of lost output.

"[T]he odds seem low that the world can avoid catastrophic warming without carbon-free nuclear power." – *Unavoidable Answer for the Problem of Climate Change*, New York Times (Nov. 2013)